IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A soil measuring method ~~which~~ that uses a soil measuring apparatus to measure properties of a soil, including the steps of:

acquiring measurement data ~~from~~ using a soil sensor based on information related to at least one parameter selected from a ~~the type of~~ soil type of a soil of a measurement site and ~~the~~ a water content ~~contained in~~ of the soil; and

calculating the properties of the soil using ~~then inputting~~ said acquired measurement data ~~into~~ in a model ~~for calculating soil properties~~, wherein the model is determined based on the information related to the at least one parameter selected from the ~~said type of~~ soil type and the water content ~~in order to calculate soil properties~~.

2. (Currently Amended) A soil measuring apparatus, comprising:

detecting means ~~which acquires~~ for acquiring ~~prescribed~~ measurement data from a soil of a measurement ~~object~~ site; and

~~measurement information~~ processing means ~~which calculates~~ for calculating ~~prescribed~~ soil properties based on said measurement data acquired by said detecting means~~; and~~,

wherein the processing means comprises a model for processing ~~by~~ said measurement data ~~and said measurement information processing means~~, and wherein the model is determined based on information related to ~~the type of~~ at least one parameter selected from a soil type of a soil of the measurement site and ~~the~~ a water content ~~contained in~~ of the soil.

3. (Currently Amended) The soil measuring apparatus of Claim 2, wherein the processing means further ~~comprising~~ comprises a soil measurement assisting ~~function which determines~~ program for determining said model and measurement conditions based on the at least one parameter selected from the soil type and the water content ~~that include the measurement data used, and establishes said measurement conditions and said model in said detecting means and said measurement information processing means~~.

4. (Currently Amended) The soil measuring apparatus of Claim 2 or Claim 3, further comprising

map creating means ~~which creates~~ for creating a soil map based on soil properties ~~outputted from~~ ~~said~~ calculated by the ~~measurement information~~ processing means and position information of the measurement site.

5. (Currently Amended) A computer readable recording medium ~~which can be read by a computer~~ ~~and which stores~~ comprising a soil measurement assisting program that includes commands for ~~the~~ a computer to execute:

a process ~~which establishes~~ for establishing a model that is determined based on at least one parameter selected from a ~~the type of~~ soil type of a soil of a measurement site and information related to ~~the~~ a water content ~~contained in~~ of the soil; and

a process ~~which receives~~ for receiving measurement data from a soil sensor, and ~~calculates~~ for calculating ~~prescribed~~ soil properties from the received measurement data and based on said ~~established~~ model.

6. (Currently Amended) A soil measurement assisting method ~~in an assisting device~~ for a soil measuring apparatus ~~which~~ that measures properties of a soil, including the steps of:

~~preparing storage means for storing soil measurement data correlated with at least~~ the type ~~of soil, information related to the water content contained in the soil, a model for calculating soil~~ ~~properties, and measurement conditions for obtaining measurement data that will be inputted into~~ ~~the model;~~

acquiring initial measurement data related to at least one parameter selected from a ~~the type~~ ~~of~~ soil type of a soil of a measurement site and information related to ~~the~~ a water content ~~contained~~ ~~in~~ of the soil; and

~~then accessing said~~ a ~~storage means~~ determining measurement conditions for further measurements and a model for calculating the properties of the soil, wherein the determining is based on the acquired initial measurement data and information stored on a storage means on the soil measuring apparatus ~~said type of soil and the information related to said water content, reading~~ ~~out the corresponding measurement conditions and model, and outputting said read out~~ ~~measurement conditions and model~~.

7. (Currently Amended) A soil measurement assisting method ~~in an assisting device~~ for a soil

measuring apparatus ~~which~~ that measures properties of a soil, including the steps of:

~~preparing storage means for storing soil measurement data correlated with at least the type of soil, information related to the water content contained in the soil, and measurement conditions for obtaining measurement data that will be inputted into a model for calculating soil properties;~~

acquiring initial measurement data related to at least one parameter selected from a ~~the type of~~ soil type of a soil of a measurement site, and information related to ~~the~~ a water content ~~contained in~~ of the soil; and

~~then accessing said storage means~~ determining measurement conditions for further measurements based on the acquired initial measurement data and information stored on a storage means on the soil measuring apparatus ~~said type of soil and the information related to said the water content, reading out the corresponding measurement conditions, and outputting said read out measurement conditions.~~

8. (Currently Amended) A soil measurement assisting method ~~in an assisting device~~ for a soil measuring apparatus ~~which~~ that measures properties of a soil, including the steps of:

~~preparing storage means for storing soil measurement data correlated with at least the type of soil, information related to the water content contained in the soil, and a model for calculating soil properties;~~

acquiring initial measurement data related to at least one parameter selected from a ~~the type of~~ soil type of a soil of a measurement site, and information related to ~~the~~ a water content ~~contained in~~ of the soil; and

~~then accessing said storage means~~ determining a model for calculating the properties of the soil based on the acquired initial measurement data and information stored on a storage means on the soil measuring apparatus ~~said type of soil and the information related to said water content, reading out the corresponding model, and outputting said read out model.~~

9. (Currently Amended) A soil measurement assisting device for a soil measuring apparatus ~~which~~ that measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least one selected from a ~~the type of~~ soil type, information related to ~~the~~ a water content ~~contained in~~ of the soil, a model for calculating soil properties, and measurement conditions for obtaining measurement data that

will be inputted into the model;

determining means ~~which acquires~~ <u>for acquiring initial measurement data related to</u> at least <u>one parameter selected from</u> the ~~type of~~ soil <u>type</u> of a measurement site and <u>the</u> information related to the water content ~~contained in~~ <u>of</u> the soil, <u>and for accessing</u> ~~accesses~~ said storage means <u>to determine measurement conditions and the model for calculating the properties of the soil</u> based on the acquired <u>initial measurement data</u> ~~said type of soil and the information related to said~~ <u>the</u> ~~water content, and determines the corresponding measurement conditions and model~~; and

means for outputting said ~~read out~~ measurement conditions and <u>the</u> model determined by the determining means.

10. (Currently Amended) A soil measurement assisting device for a soil measuring apparatus ~~which~~ <u>that</u> measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least <u>one selected from a</u> ~~the type of~~ soil <u>type</u>, information related to ~~the~~ <u>a</u> water content ~~contained in~~ <u>of</u> the soil, and measurement conditions for obtaining measurement data that will be inputted into a model for calculating soil properties;

determining means ~~which~~ <u>for acquiring initial measurement data related to</u> ~~acquires~~ at least one <u>parameter selected from</u> the ~~type of~~ soil <u>type</u> of a measurement site and <u>the</u> information related to the water content ~~contained in~~ <u>of</u> the soil, <u>and for accessing</u> ~~accesses~~ said storage means <u>to determine measurement conditions</u> based on the acquired <u>initial measurement data related to the at least one parameter selected from</u> said <u>soil</u> type ~~of soil~~ and the information related to said water content ~~, and determines the corresponding measurement conditions~~; and

means for outputting said ~~read out~~ measurement conditions determined by the determining means.

11. (Currently Amended) A soil measurement assisting device for a soil measuring apparatus ~~which~~ <u>that</u> measures properties of a soil, comprising:

storage means for storing soil measurement data correlated with at least <u>one selected from a</u> ~~the type of~~ soil <u>type</u>, information related to ~~the~~ <u>a</u> water content ~~contained in~~ <u>of</u> the soil, and a model for calculating soil properties;

determining means ~~which acquires~~ <u>for acquiring initial measurement data related to</u> at least

one parameter selected from the ~~type of~~ soil type of a measurement site and the information related to the water content ~~contained in~~ of the soil, and for accessing ~~accesses~~ said storage means to determine the model for calculating the soil properties based on the acquired initial measurement data ~~said type of soil and the information related to said water content, and determines the corresponding model~~; and

means for outputting said ~~read-out~~ model determined by the determining means.

12. (Currently Amended) The soil measurement assisting device of any one of Claim 9 through Claim 11, further comprising a type-of-soil detecting means ~~which calculates~~ for calculating said ~~type-of~~ soil type based on the initial measurement data ~~obtained by measuring the soil of a measurement object~~, and for supplying ~~supplies~~ the calculated ~~type-of~~ soil type to ~~said~~ the determining means.

13. (Currently Amended) The soil measurement assisting device of any one of Claim 9 through ~~Claim 12~~ Claim 11, further comprising a water content ~~information~~ detecting means ~~which calculates information related to~~ for calculating said water content based on the initial measurement data ~~obtained by measuring the soil of a measurement object~~, and ~~supplies~~ for supplying the calculated water content ~~information~~ to said determining means.

14. (Currently Amended) The soil measurement assisting device of any one of Claim 9 through ~~Claim 13~~ Claim 11, further comprising a water content ~~information~~ detecting means ~~which calculates information related to~~ for calculating said water content based on the initial measurement data ~~obtained by measuring the soil of a measurement object~~ and ~~the rough type of~~ a preliminary soil type ~~prescribed~~ estimated from ~~the~~ a clay content of the soil of the ~~measurement object~~ measurement site, and ~~supplies~~ for supplying the calculated water content ~~information~~ to said determining means.

15. (Currently Amended) The soil measurement assisting device of any one of Claim 9 through ~~Claim 14~~ Claim 11, wherein said ~~type of~~ soil type is ~~calculated~~ determined from a ~~data base~~ database that stores previous ~~previously carried out~~ measurements.

16. (Currently Amended) A soil measurement assisting method ~~in an assisting device~~ for a soil measuring apparatus ~~which~~ that measures properties of a soil, comprising the steps of:

~~preparing storage means which stores soil measurement data correlated with information related to optical properties of the soil, information related to chemical components of the soil, and a model for calculating soil properties;~~

acquiring ~~at least information~~ a first set of measurement data related to optical properties of a measurement site;

~~then accessing said storage means~~ determining a preliminary soil model based on the acquired first set of measurement data and information stored in a storage means on the soil measuring apparatus ~~said information related to optical properties, and~~;

reading out ~~a corresponding~~ the preliminary soil model; ~~and~~

~~then,~~ acquiring ~~information~~ a second set of measurement data related to chemical components of the soil ~~at a prescribed site~~;

~~wherein said~~ modifying the preliminary model ~~is compensated~~ based on ~~said~~ the second set of measurement data ~~information related to chemical components~~.

17. (Currently Amended) A recording medium ~~which~~ that can be read by a computer and ~~which~~ that stores a soil measurement assisting program that includes commands for the computer to execute:

a process ~~which~~ that acquires ~~at least the type of~~ initial measurement data related to a soil type of a soil of a measurement site, and information related to ~~the~~ a water content ~~contained in~~ of the soil,

a process ~~which~~ that, based on the acquired initial measurement data ~~said type of soil and said information related to the water content~~, accesses a storage region that stores information related to ~~the type of~~ soil type, the information related to the water content of the soil ~~contained in the soil~~, a model for calculating soil properties, and measurement conditions for acquiring further measurement data ~~which will~~ to be inputted into the model, ~~and then reads out the corresponding measurement conditions and model~~; and

a process ~~which~~ that outputs ~~said read out~~ a set of suitable measurement conditions and the model determined based on the initial measurement data.

18. (Currently Amended) A recording medium ~~which~~ that can be read by a computer and ~~which~~ that stores a soil measurement assisting program that includes commands for the computer to execute:

a process ~~which~~ that acquires ~~at least the type of~~ initial measurement data related to a soil type and a water content of a measurement site, ~~and information related to the water content contained in the soil,~~

a process ~~which~~ that, based on the acquired ~~of~~ initial measurement data ~~said type of soil and said information related to the water content~~, accesses a storage region that stores ~~at least the type of~~ information related to the soil type, the information related to the water content ~~contained in the soil~~, and measurement conditions for acquiring further measurement data ~~which will~~ to be inputted into a model for calculating soil properties, ~~and then reads out the corresponding measurement conditions~~; and

a process ~~which~~ that outputs said ~~read-out~~ a set of suitable measurement conditions determined based on the initial measurement data.

19. (Currently Amended) A recording medium ~~which~~ that can be read by a computer and ~~which~~ that stores a soil measurement assisting program that includes commands for the computer to execute:

a process ~~which~~ that acquires ~~at least the type of~~ initial measurement data related to a soil type and a water content of a measurement site, ~~and information related to the water content contained in the soil,~~

a process ~~which~~ that, based on the acquired initial measurement data ~~said type of soil and said information related to the water content~~, accesses a storage region that stores information related to ~~at least the type of~~ soil types, ~~the information related to the~~ water contents of soils ~~contained in the soil~~, and ~~a~~ models for calculating soil properties, and determines a suitable model for calculating soil properties, ~~and then reads out the corresponding model~~; and

a process ~~which~~ that outputs ~~said read-out~~ the suitable model.

20. (Currently Amended) The recording medium ~~which~~ that can be read by a computer according to any one of Claim 17 ~ Claim 19, further comprising a program ~~which~~ that executes at least one process selected from a process ~~which~~ that calculates said ~~type of~~ soil type based on the initial

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measurement data ~~acquired by measuring a soil~~ of a ~~measurement object~~ measurement site, and a process ~~which~~ that calculates ~~said information related to~~ the water content based on the initial measurement data ~~acquired by measuring a soil of a measurement object~~.

21. (Currently Amended) A soil measuring apparatus, comprising:

a soil measuring apparatus main body equipped with detecting means ~~which~~ that acquires ~~prescribed~~ measurement data from a soil of a ~~measurement object~~ measurement site, and ~~measurement information~~ processing means ~~which~~ that calculates ~~prescribed~~ soil properties based on said measurement data ~~acquired by said detecting means~~; and

a soil measurement assisting device ~~which~~ that determines, and then outputs to said soil measuring apparatus main body, ~~the type of~~ a soil type of ~~a~~ the measurement site, a model for carrying out processing by said ~~measurement information~~ processing means based on information related to ~~the~~ a water content ~~of~~ contained in the soil, and measurement conditions for acquiring further measurement data ~~which~~ that will be inputted into the model[[;]].

~~wherein data is communicated between said soil measuring apparatus main body and said soil measurement assisting device by a prescribed communication interface.~~

22. (Currently Amended) A recording medium ~~which~~ that can be read by a computer and ~~which~~ that stores at least one selected from ~~the type of~~ a soil type, information related to ~~the~~ a water content ~~contained in the~~ of a soil, a model for calculating soil properties, and soil measurement data correlated with measurement conditions ~~for acquiring measurement data which will~~ to be inputted into the model.

23. (Currently Amended) The recording medium of Claim 22, wherein said soil measurement data is further correlated with ~~the~~ a name of a measurement object property.

24. (Currently Amended) The recording medium of Claim 22, wherein said soil measurement data is further correlated with ~~the~~ a measurement method.

25. (Currently Amended) The recording medium of Claim 22, wherein said soil measurement data is further correlated with ~~the~~ a name of a measurement object property and ~~the~~ a measurement

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method.

26. (Currently Amended) A recording medium ~~which~~ that can be read by a computer and ~~which~~ that stores at least one selected from a ~~the type of~~ soil type, information related to ~~the~~ a water content ~~contained in~~ of a ~~the~~ soil, soil measurement data for calculating soil properties, and soil correlation information in a constructed state that enables output.

27. (Withdrawn) An application amount control device which, based on soil property values obtained by measurements carried out in real time while moving through a farmland, controls the amount of substances applied to a soil in order to make the soil property values achieve target values, wherein:

the amount of said substances are determined so that said soil property values of the farmland satisfy environmental standards.

28. (Withdrawn) An application amount determining device, comprising:

a measuring device which measures soil property values in real time while moving through a farmland; and

a control device which carries out a determination so that said property values of the farmland will satisfy environmental standards when determining the amount of substances to be applied to a soil to make the soil property values achieve target values based on said measured soil property values.

29. (Withdrawn) A system, comprising:

the application amount determining device of Claim 28; and

an application device which applies said substances based on the results determined by the control device of the application amount determining device.

30. (Withdrawn) An application amount control method in a control device which sends control commands to an application device which applies prescribed substances to a farmland, comprising the steps of:

acquiring soil property values obtained by carrying out measurements in real time while

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moving through the farmland; and

then, based on the acquired soil property values, controlling the amount of substances applied to the soil within a range that makes said soil property values of the farmland satisfy environmental standards.

31. (Withdrawn) A recording medium which can be read by a computer and which stores an application amount determining program that includes:

a process which acquires soil property values obtained by measurements carried out in real time while moving through a farmland; and

a process which, based on the acquired soil property values, determines the amount of substances to be applied to the soil within a range that makes said soil property values of the farmland satisfy environmental standards held in storage.

32. (Withdrawn) A farm working determination assisting system, comprising:

means for acquiring a soil properties map via communication means from the outside;

a data base system which records said soil properties map in a data base in correlation with a work history, and which is capable of searching a work history suited to the inputted soil properties map; and

means for creating and outputting a work plan based on the work history suited to said soil properties map.

33. (Currently Amended) A soil model ~~data base~~ database control system ~~which~~ that accesses, updates and reads out stored contents of a soil model database ~~data base~~, wherein

the soil model database stores ~~in which~~ at least ~~type of~~ one parameter selected from a soil type, information related to ~~the~~ a water content ~~contained in~~ of a ~~the~~ soil, soil measurement data for calculating soil properties, and soil correlation information ~~are stored in a constructed state capable of being outputted, and which updates and reads out the stored contents~~, the soil model database control system comprising:

a function ~~which supplies~~ for supplying recorded information in response to ~~the contents of the~~ a request received from a user, and ~~which updates~~ for updating ~~the~~ contents of the soil model database.

34. (New) The soil measurement assisting device of Claim 12, further comprising a water content detecting means for calculating the water content based on the initial measurement data and for supplying the calculated water content to said determining means.

35. (New) The soil measurement assisting device of Claim 12, further comprising a water content detecting means for calculating the water content based on the initial measurement data and a preliminary soil type estimated from a clay content of the soil of the measurement site, and for supplying the calculated water content to the determining means.

36. (New) The soil measurement assisting device of Claim 13, further comprising a water content detecting means for calculating the water content based on the initial measurement data and a preliminary soil type estimated from a clay content of the soil of the measurement site, and for supplying the calculated water content to the determining means.

37. (New) The soil measurement assisting device of Claim 12, wherein said soil type is determined from a database that stores previous measurements.

38. (New) The soil measurement assisting device of Claim 13, wherein said soil type is determined from a database that stores previous measurements.

39. (New) The soil measurement assisting device of Claim 14, wherein said soil type is determined from a database that stores previous measurements.